

The applicant submits that while the two coils 45 and 50 are indeed physically parallel, as depicted in Figure 9, the two coils are not electrically parallel, and indeed the only electrical connections shared by coils 45 and 50 is a connection to ground. As shown in Figures 12A and 12B, and at column 11, lines 42-51, the coil 45 is electrically connected to a first independent detection circuit and the coil 50 is electrically connected to a second detection circuit. Accordingly, the applicant has amended pending claim 8 to explicitly recite that the first and second oscillator coils are electrically interconnected in an electrically parallel relationship.

In the Office Action, the examiner rejected pending claim 9 based on Johnson (5,504,428) in view of Nelson-White (6,342,835). In particular, the examiner stated that Nelson-White discloses an oscillator 20 and a first and second adjacent oscillator coils 12, 14 connected in series (column 3 lines 26-27).

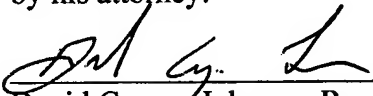
The applicant submits that the present invention is directed to physically small metal detector search heads, and as such the dimensional limitations of the present invention are important (Specification, page 15, lines 19-23). Accordingly, pending claim 9 has been amended to recite that the oscillator coil forms an aperture having an area of less than five hundred square centimeters (Specification, page 13, line 25 recites a typical small aperture as being 350mm by 150mm). A small search head constructed according to the existing state of the art contains an oscillator coil having an inherently small electrical inductance (Specification, page 6, lines 8-9). Such a search head is driven or excited by an oscillator having a maximum current rating of approximately eleven amperes root mean square (Specification, page 15, line 24), which is normally reached for a small oscillator coil when the voltage is relatively low, or about ten volts peak to peak (Specification, page 16, line 6). State of the art solutions to the low inductance problem include raising the operating frequency, since inductance is directly proportional to frequency. However, this option is not available in many bulk flow food processing applications because the product itself is electrically conductive due to its salt water content. The present invention, as claimed in amended claim 9, uses a series wound

oscillator coil to increase the magnetic flux within a small volume for a given operating frequency.

The Nelson-White disclosure is not limited in its ability to create a large inductance due to a small aperture size. In particular, the Nelson-White device is explicitly stated to include an aperture large enough to permit a human to pass through (column 3, lines 20-22).

Accordingly, the applicant respectfully submits that Claims 8 and 9, as amended, are now in condition for allowance.

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